1. (Original) A method of publishing relational data as XML, comprising the method steps of:

mapping a number of relational database tables to a number of virtual XML documents;

issuing XML queries over said virtual XML documents;

parsing said XML queries;

transforming said XML queries into a language-neutral intermediate representation;

rewriting said language-neutral intermediate representation into an equivalent form easily translated into an SQL query;

translating said equivalent form into an SQL query over said relational database tables and into tagging instructions passed to a tagger;

executing said SQL query to produce SQL query results passed to said tagger; and

generating XML output using said SQL query results and said tagging instructions.

2. (Original) The method of claim 1 wherein said method operates over a distributed computing network.

3. (Original) The method of claim 2 wherein said method operates over the Internet.

4. (Original) The method of claim 1 wherein said mapping step operates recursively.

5. (Original) The method of claim 1 wherein said mapping step operates manually.

6. (Original) The method of claim 1 wherein said mapping step maps said relational database tables to said virtual XML documents in a one-to-one manner.

7. (Original) The method of claim 1 wherein said language-neutral intermediate representation includes a sequence of operations describing:

how to select and relate data from said relational database tables; and

how to construct and group new XML elements from data bindings.

8. (Original) The method of claim 7 wherein said transforming step operates on at least one said relational database table and produces at least one output table.

9. (Original) The method of claim 7 wherein said operations include BIND operations.

10. (Original) The method of claim 7 wherein said operations include SELECT operations.

11. (Original) The method of claim 7 wherein said operations include CONSTRUCT operations.

12. (Original) The method of claim 7 wherein said operations include JOIN operations.

13. (Original) The method of claim 7 wherein said operations include GROUP operations.

14. (Original) The method of claim 7 wherein said operations include NEST operations.

15. (Original) The method of claim 1 wherein said rewriting step includes the further steps of:

eliminating both S and B whenever S is followed by a BIND operation B, where S denotes the sequence of CONSTRUCT, GROUP, and CONSTRUCT operations following a table access for a default view of a table T, leaving just the table access for T; and

replacing N by a JOIN operation, followed by S and a new GROUP operation which performs the child grouping that was previously done by N, where N denotes a NEST operation and S denotes any sequence of CONSTRUCT and GROUP operations for the child input of N.

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16. (Original) The method of claim 1 wherein said rewriting step may operate repeatedly for deeper levels of nesting.

17. (Original) The method of claim 1 wherein said tagger operates outside an RDBMS.

18. (Original) The method of claim 7 wherein said operations describing how to select and relate data are translated into an SQL query that establishes selection criteria and required relationships among data.

19. (Original) The method of claim 7 wherein said operations describing how to construct and group new XML elements are translated into said tagger instructions.

20. (Original) The method of claim 19 wherein said operations are reordered to be performed last.

21. (Original) The method of claim 19 wherein said language-neutral intermediate representation serves as said tagging instructions.

22. (Original) A system for publishing relational data as XML, comprising:

a schema mapper for mapping a number of relational database tables to a number of virtual XML documents;

an XML-QL engine for issuing XML queries over said virtual XML documents;

a parser for parsing said XML queries and for transforming said XML queries into a language-neutral intermediate representation;

a rewrite engine for rewriting said intermediate representation into an equivalent form easily translated into an SQL query;

a translator for translating said equivalent form into an SQL query over said relational database tables and into tagging instructions;

an RDBMS for executing said SQL query to produce SQL query results; and

a tagger for generating XML output using said SQL query results and said tagging instructions.

23. (Original) The system of claim 22 wherein said system operates over a distributed computing network.

24. (Original) The system of claim 23 wherein said system operates over the Internet.

25. (Original) The system of claim 22 wherein said schema mapper operates recursively.

26. (Original) The system of claim 22 wherein said schema mapper operates manually.

27. (Original) The system of claim 22 wherein said schema mapper maps said relational database tables to said virtual XML documents in a one-to-one manner.

28. (Original) The system of claim 22 wherein said language-neutral intermediate representation includes commands controlling how said system:

selects and relates data from said relational database tables; and.

constructs and groups new XML elements from data bindings.

29. (Original) The system of claim 28 wherein said parser operates on at least one said relational database table and produces at least one output table.

30. (Original) The system of claim 28 wherein said system performs BIND operations.

31. (Original) The system of claim 28 wherein said system performs SELECT operations.

32. (Original) The system of claim 28 wherein said system performs CONSTRUCT operations.

33. (Original) The system of claim 28 wherein said system performs JOIN operations.

34. (Original) The system of claim 28 wherein said system performs GROUP operations.

35. (Original) The system of claim 28 wherein said system performs NEST operations.

36. (Original) The system of claim 22 wherein said rewrite engine:

eliminates both S and B whenever S is followed by a BIND operation B, where S denotes the sequence of CONSTRUCT, GROUP, and CONSTRUCT operations following a table access for a default view of a table T, leaving just the table access for T; and

replaces N by a JOIN operation, followed by S and a new GROUP operation which performs the child grouping that was previously done by N, where N denotes a NEST operation and S denotes any sequence of CONSTRUCT and GROUP operations for the child input of N.

37. (Original) The system of claim 22 wherein said rewrite engine may operate repeatedly for deeper levels of nesting.

38. (Original) The system of claim 22 wherein said tagger operates outside an RDBMS.

39. (Original) The system of claim 28 wherein said system translates commands describing how to select and relate data into an SQL query that establishes selection criteria and required relationships among data.

40. (Original) The system of claim 28 wherein said system translates commands describing how to construct and group new XML elements into said tagger instructions.

41. (Original) The system of claim 40 wherein said commands are reordered to be performed last.

42. (Original) The system of claim 40 wherein said language-neutral intermediate representation serves as said tagging instructions.

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43. (Original) A system for publishing relational data as XML, comprising:

means for mapping a number of relational database tables to a number of virtual XML documents;

means for issuing XML queries over said virtual XML documents;

means for parsing said XML queries and for transforming said XML queries into a language-neutral intermediate representation;

means for rewriting said intermediate representation into an equivalent form easily translated into an SQL query;

means for translating said equivalent form into an SQL query over said relational database tables and into tagging instructions;

means for executing said SQL query to produce SQL query results; and

means for generating XML output using said SQL query results and said tagging instructions.

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44. (Original) A computer program product comprising a machine-readable medium including machine-executable instructions therein for publishing relational data as XML comprising the steps of:

mapping a number of relational database tables to a number of virtual XML documents;

issuing XML queries over said virtual XML documents;

parsing said XML queries;

transforming said XML queries into a language-neutral intermediate representation;

rewriting said language-neutral intermediate representation into an equivalent form easily translated into an SQL query;

translating said equivalent form into an SQL query over said relational database tables and into tagging instructions passed to a tagger;

executing said SQL query to produce SQL query results passed to said tagger; and

generating XML output using said SQL query results and said tagging instructions.